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56 students found free of infection had a standing of 89 per cent. In another instance 25 infected boys in a southern academy averaged 64 per cent in their studies, as compared with 86 per cent in the same number of non-infected. Retardation here was 25 per cent. Teachers everywhere are unanimous in reporting that treatment of the infected pupil results not only in marked gain in weight and physical appearance, but in decided improvement in zeal and intelligence as well.

Hookworm disease rarely kills people directly, and while the direct effects are serious, the indirect effects are more so because of the lowered vitality and weakened resistance. This condition makes the sufferer more susceptible to other diseases and lessens his chances for recovery. Mild cases may go on for years and the trouble not be recognized. It is now strongly suspected that many cases of supposed tuberculosis among negroes are undiagnosed hookworm disease.

(*To be continued*)

SYNERGISTIC ANAESTHESIA

As Used in the North Chicago Hospital

By Eleanor C. Ahrens, R.N.
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(The following article is published on request of a nurse who was embarrassed to find herself unfamiliar with newer methods of anaesthesia.—Ed.)

NURSES are familiar with the symptoms of post-operative discomfort which result from acidosis and traumatic shock. Following all ether anaesthesia, acetone bodies are found in the urine. It is said by some surgeons that six per cent of the laparotomies show acetone for the first twenty-four hours after operation.

Dr. J. T. Gwathmey of New York City contributed to the subject of Synergistic Anaesthesia in 1920-1921 a number of articles which were published in the *Journal of the American Medical Association.*

Dr. Joseph C. Beck of the North Chicago Hospital, a noted Otorhino Laryngologist, has been using the following method for a number of months with great success.

The drugs used are: Morphine for adults, paragoric for children, in lieu of morphine; Magnesium Sulphate 25 per cent solution; Ether; Olive Oil; Paraldehyd.

The technique is as follows:

Two hours before the patient is to be operated upon,—after preparing skin with 2 per cent Iodine solution, give hypodermic of sterile Magnesium Sulphate c. c. 11, plus Morphine Sulphate gr. ⅛. Repeat every half hour until three doses have been given. Then give, per rectum: Olive Oil, aa. drachm iii; paraldehyd, drachm iii; Ether, drachm iss.

The hypodermics are given in the buttocks as a rule and rarely in the deltoid. If the patient is a child, paregoric minims V drachm iss, is given by mouth in lieu of morphine. One-half hour later give, per rectum; Magnesium Sulphate, 1 c. c.; Ether drachm iss; Olive Oil, drachm iss.

Surgical anaesthesia is reached in from four to six hours. The patient can be aroused after this anaesthetic and will carry on a conversation but will not remember it.

No post-operative vomiting occurs, the patient has no gas pains and sleeps from four to twelve hours. Occasionally it is necessary to resort to an accessory anaesthetic of ether inhalation or vapor method and apothesene 2 per cent per hypodermic.

The operations performed at this hospital under synergistic anaesthesia are tonsilectomies, sub-mucus resections of nasal septum, radical antrum and frontal sinuses, mastoidectomy, suspension laryngoscopy, laryngectomy, excision of upper jaw, thyroidectomy, trephine of skull, and decompression operation.

The technique used in some hospitals, however, consists of a preliminary alkaline treatment of Sodium Bicarbonate and lactose for several days before operation, in order to have the patient thoroughly saturated with the carbonate. Immediate pre-operation treatment is essentially that of Gwathmey, which consists of a hypodermoclysis of a 4 per cent chemically pure and sterile solution of magnesium sulphate given at fifteen-minute intervals for two or three doses, starting one and one-quarter hours before operation, and morphine sulphate 1/10 to ⅛ gr. in 1.5 c. c. of a 25 per cent chemically pure and sterile solution of the magnesium sulphate given at fifteen-minute intervals for two or three doses, starting one and one-quarter hours before operation. Gwathmey has used as much as 400 c. c. in hypodermoclysis and has given the morphine in from 1 to 2 c. c. solution.

The patient is always kept in a darkened quiet place and is very gently removed to the anaesthethizing room where the synergistic anaesthesia of ether by drop method is commenced, if it is necessary to administer same. The patient is practically in a state of analgesia and the excitement stage is nil. The pulse is usually slow and little faster in the second stage, retiring to a lower rate during the operation.

Successful anaesthesia of this type calls for the utmost precision in carrying out orders and the most careful observation on the part of the nurses entrusted with the care of these patients.

LEGAL STANDARDS FOR DRUGS

By Linette A. Parker, R.N.
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The Pure Food and Drug Act which was passed in 1907 states in Section 6 "that the term 'drug,' as used in this Act, shall include all medicines and preparations recognized in the United States Pharmacopeia or National Formulary for internal or external use, and any substance or mixture of substances intended to be used for the cure, mitigation or prevention of disease of either man or other animals."

This official definition of the word "drug" established as legal standards two books, the Pharmacopeia and Formulary, which for many years have been published by medical and pharmaceutical societies for the purpose of maintaining some degree of uniformity and standardization of drugs throughout the country.

The United States Pharmacopeia (U. S. P.) is a book of about six hundred pages containing detailed descriptions of important medicinal chemicals and crude drugs and directions for making various pharmaceutical preparations. The selection of the drugs and preparations to be included in the Pharmacopeia is made on the basis of their known value as medicines and their necessity in pharmacy.

The development of the present form of the Pharmacopeia has been most interesting. In 1778 a book of this nature was published in Philadelphia for the use of the United States army; in 1805 a similar one was brought out by the Massachusetts Medical Society to meet the needs of that locality, and in 1815 the physicians and surgeons of the New York Hospital in New York City arranged for the publication of a hospital pharmacopeia which came to have a fairly wide distribution. All of these books were largely collections of prescriptions which were of established value and in general local use.

In 1820, through the efforts of the New York County Medical Society, a general convention of delegates from state medical colleges and medical societies met in Washington, D. C., to formulate a comprehensive pharmacopeia adapted for use in all sections of the country. The book appeared, the first national pharmacopeia of the United States, that same year. It was a publication of 272 pages, printed in both Latin and English. In 1830, through misunderstandings, two